

What is claimed is:

1. A piston seal assembly for a pipette having a body, a piston, and a spring, the body including a shaft segment and a housing segment, the shaft segment defining a bore, the housing segment defining a cavity which is coaxial with the bore, the cavity having an inner surface and defining a shoulder, the piston including a rod segment disposed within the body, an operator segment disposed exterior to the body, and an engagement member disposed intermediate the rod and operator segments, the spring being disposed within the cavity and providing a biasing force between the shoulder of the body and the engagement member of the piston, the seal assembly comprising:
 - an O-ring having radially inner and outer surfaces and axially separated first and second surfaces, the radially inner surface defining an opening, the first surface being adapted for engaging the shoulder;
 - an integral, one-piece, substantially circular seal having a radially extending rim portion and an axially extending sleeve portion, the sleeve portion extending axially through the opening of the O-ring and having radially inner and outer surfaces, the radially outer surface of the sleeve portion engaging the radially inner surface of the O-ring, the radially inner surface of the sleeve portion being adapted for slidably engaging the rod segment of the piston, the rim portion having axially separated first and second surfaces, the first surface of the rim portion engaging the second surface of the O-ring; and
 - an integral, one-piece, substantially circular seat having a radially extending engagement portion and an axially extending indexing portion, the indexing portion having radially inner and outer surfaces, the engagement portion having axially separated first and second surfaces and defining an opening adapted for receiving the

rod segment of the piston, the first surface of the engagement
 portion engaging the second surface of the rim portion, the second
 surface of the engagement portion being adapted for engaging an end
 of the spring, the radially inner surface of the indexing portion
 5 engaging the radially outer surface of the O-ring, the radially outer
 surface of the indexing portion being adapted for engaging the inner
 surface of the cavity.

2. The piston seal assembly of claim 1 wherein the O-ring is
 deformable by the biasing force of the spring whereby the radially
 10 inner surface of the O-ring urges the sleeve portion of the seal into
 sealing engagement with the rod segment of the piston and the
 radially outer surface of the O-ring urges the indexing portion of the
 seat into sealing engagement with the surface of the cavity.

3. The piston seal assembly of claim 1 wherein the seal is
 15 composed of UHMWPE.

4. The piston seal assembly of claim 1 wherein the O-ring is
 composed of rubber.

5. A pipette comprising:
 a body including a shaft segment and a housing segment, the
 20 shaft segment defining a bore, the housing segment defining a cavity
 which is coaxial with the bore, the cavity having an inner surface and
 defining a shoulder;

a piston including a rod segment disposed within the body, an
 operator segment disposed exterior to the body, and an engagement
 25 member disposed intermediate the rod and operator segments;

a spring having opposite first and second ends, the first end engaging the engagement member of the piston; and

a seal assembly including

5 an O-ring having radially inner and outer surfaces and axially separated first and second surfaces, the radially inner surface defining an opening, the first surface engaging the shoulder of the body,

10 an integral, one-piece, substantially circular seal having a radially extending rim portion and an axially extending sleeve portion, the sleeve portion extending axially through the opening of the O-ring and having radially inner and outer surfaces, the radially outer surface of the sleeve portion engaging the radially inner surface of the O-ring, the radially inner surface of the sleeve portion defining an opening
15 receiving the rod segment of the piston, the radially inner surface slidably engaging the rod segment of the piston, the rim portion having axially separated first and second surfaces, the first surface of the rim portion engaging the second surface of the O-ring, and

20 an integral, one-piece, substantially circular seat having a radially extending engagement portion and an axially extending indexing portion, the indexing portion having radially inner and outer surfaces, the engagement portion having axially separated first and second surfaces and defining an opening
25 receiving the rod segment of the piston, the first surface of the engagement portion engaging the second surface of the rim portion, the second surface of the engagement portion engaging the second end of the spring, the radially inner surface of the indexing portion engaging the radially outer

surface of the O-ring, the radially outer surface of the indexing portion engaging the a surface of the cavity;

wherein the O-ring is deformed by the biasing force of the spring whereby the radially inner surface of the O-ring urges the sleeve portion of the seal into sealing engagement with the rod segment of the piston and the radially outer surface of the O-ring urges the indexing portion of the seat into sealing engagement with the inner surface of the cavity.

6. A piston seal assembly for a pipette having a body, a piston, and a spring, the body including a shaft segment and a housing segment, the shaft segment defining a bore, the housing segment defining a cavity which is coaxial with the bore, the cavity having an inner surface and defining a shoulder, the piston including a rod segment disposed within the body, an operator segment disposed exterior to the body, and an engagement member disposed intermediate the rod and operator segments, the spring being disposed within the cavity and providing a biasing force between the shoulder of the body and the engagement member of the piston, the seal assembly comprising:

an O-ring composed of rubber having radially inner and outer surfaces and axially separated first and second surfaces, the radially inner surface defining an opening, the first surface being adapted for engaging the shoulder;

an integral, one-piece, substantially circular seal composed of UHMWPE having a radially extending rim portion and an axially extending sleeve portion, the sleeve portion extending axially through the opening of the O-ring and having radially inner and outer surfaces, the radially outer surface of the sleeve portion engaging the radially inner surface of the O-ring, the radially inner surface of the sleeve

portion being adapted for slidably engaging the rod segment of the piston, the rim portion having axially separated first and second surfaces, the first surface of the rim portion engaging the second surface of the O-ring; and

- 5 an integral, one-piece, substantially circular seat having a radially extending engagement portion and an axially extending indexing portion, the indexing portion having radially inner and outer surfaces, the engagement portion having axially separated first and second surfaces and defining an opening adapted for receiving the
- 10 rod segment of the piston, the first surface of the engagement portion engaging the second surface of the rim portion, the second surface of the engagement portion being adapted for engaging an end of the spring, the radially inner surface of the indexing portion engaging the radially outer surface of the O-ring, the radially outer
- 15 surface of the indexing portion being adapted for engaging the inner surface of the cavity.